AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the Application. No new matter has been introduced by way of the claim amendments. Current additions to the claims are noted with underlined text. Current deletions from the claims are indicated by text ~~strikethrough~~ or [[double bracketing]]. The status of each claim is indicated in parenthetical expression following the claim number.

1 – 20. (Cancelled)

21. (Currently Amended) A composition comprising a prodrug, the prodrug comprising:

a therapeutically active drug; and

a peptide comprising the sequence GKAFRR (SEQ ID NO:9)~~G-K-A-X_1-X_2-X_3 (SEQ ID NO:17) wherein at least one of X_1, X_2 and X_3 is arginine, and wherein the other two amino acid residues at X_1, X_2 and X_3 are each any amino acid residue~~,

wherein the peptide is linked to the therapeutically active drug to inhibit the therapeutic activity of the drug, and

wherein the therapeutically active drug is cleaved from the peptide upon proteolysis by an enzyme having a proteolytic activity of human kallikrein 2 (hK2).

22. (Original) The composition of claim 21, wherein the peptide is linked directly to the therapeutic drug.

23. (Previously Amended) The composition of claim 22, wherein the peptide is linked directly to a primary amine group on the drug.

24. (Original) The composition of claim 21, wherein the peptide is linked to the therapeutic drug via a linker.

25. (Withdrawn) The composition of claim 24, wherein the linker is an amino acid sequence.

26. (Withdrawn) The composition of claim 25, wherein the linker comprises a leucine residue.

27. (Currently Amended) The composition of claim 24, wherein the linker is selected from the group consisting of unsubstituted or alkyl-, aryl-, halo-, alkoxy-, alkenyl-, amido- or amino-substituted CO-$(CH=CH)_{n1}$-$(CH_2)_{n2}$-Ar-NH_2, CO-$(CH_2)_{n2}$-$(CH=CH)_{n1}$-Ar-NH_2, CO-$(CH_2)_{n2}$-$(CH=CH)_{n1}$-CO-NH-Ar-NH_2, CO-$(CH=CH)_{n1}$-$(CH_2)_{n2}$-CO-NH-Ar-NH_2, CO-$(CH_2)_{n3}$-NH_2, and CO-$(CH_2)_{n3}$-NH-CO-CH(R_4)-NH_2,

wherein n1 and n2 are from 0 to 5, n3 is from 0 to 15, Ar is any substituted or unsubstituted aryl group, attachment of NH_2 to Ar is in an ortho, meta or para position with respect to the remainder of the linker, and R_4 is any naturally occurring amino acid side chain.

28. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug inhibits a SERCA pump.

29. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is selected from the group consisting of primary amine containing thapsigargins and thapsigargin derivatives.

30. (Original) The composition of claim 29, wherein the thapsigargin derivative is 8-O-(12-[L-leucinoylamino]dodecanoyl)-8-O-debutanoylthapsigargin (L12ADT).

31. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug intercalates into a polynucleotide.

32. (Original) The composition of claim 31, wherein the therapeutically active drug is an anthracycline.

33. (Original) The composition of claim 32, wherein the anthracycline is selected from the group consisting of doxorubicin, daunorubicin, epirubicin, and idarubicin.

34. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is a taxane.

35. (Original) The composition of claim 34, wherein the taxane is selected from the group consisting of paclitaxel and docetaxel.

36. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is a vinca alkaloid.

37. (Original) The composition of claim 36, wherein the vinca alkaloid is selected from the group consisting of vincristine, vinblastine, and etoposide.

38. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is an antiandrogen.

39. (Original) The composition of claim 38, wherein the antiandrogen is selected from the group consisting of biscalutamide, flutamide, nilutamide, and cyproterone acetate.

40. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is an antifolate.

41. (Original) The composition of claim 40, wherein the antifolate is methotrexate.

42. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is a nucleoside analog.

43. (Original) The composition of claim 42, wherein the nucleoside analog is selected from the group consisting of 5-Fluorouracil, gemcitabine, and 5-azacytidine.

44. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is a topoisomerase inhibitor.

45. (Original) The composition of claim 44, wherein the topoisomerase inhibitor is selected from the group consisting of Topotecan and irinotecan.

46. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is an alkylating agent.

47. (Currently Amended) The composition of claim 46, wherein the alkylating agent is selected from the group consisting of cyclophosphamide, ~~C~~cisplatinum, carboplatinum, and ifosfamide.

48. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug is a targeted radiation sensitizer.

49. (Original) The composition of claim 48, wherein the targeted radiation sensitizer is selected from the group consisting of 5-fluorouracil, gemcitabine, topoisomerase inhibitors, and cisplatinum.

50. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug has an IC_{50} toward ER Ca^{2+}-ATPase of at most 500 nM.

51. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug has an IC_{50} toward ER Ca^{2+}-ATPase of at most 50 nM.

52. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug has an LC_{50} toward hK2-producing tissue of at most 20 μM.

53. (Previously Amended) The composition of claim 21, wherein the therapeutically active drug has an LC_{50} toward hK2-producing tissue of less than or equal to 2.0 μM.

54 – 75. (Cancelled)